

**ABSTRACT OF THE DISCLOSURE**

A technique is provided for automatically generating a bone mask in CTA angiography. In accordance with the technique, an image data set may be pre-processed to accomplish a variety of function, such as removal of image data associated with the table, partitioning the volume into regionally consistent sub-volumes, computing structures edges based on gradients, and/or calculating seed points for subsequent region growing. The pre-processed data may then be automatically segmented for bone and vascular structure. The automatic vascular segmentation may be accomplished using constrained region growing in which the constraints are dynamically updated based upon local statistics of the image data. The vascular structure may be subtracted from the bone structure to generate a bone mask. The bone mask may in turn be subtracted from the image data set to generate a bone-free CTA volume for reconstruction of volume renderings.